

# Biological Evaluation for the North 40 Project

On the Ocala National Forest

Marion County, Florida  
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## 1.0 INTRODUCTION

This Biological Evaluation documents the analysis and rationale for the potential effects of a specific planned Forest Service (FS) activity on sensitive wildlife species. This document serves as a supplement to the Biological Assessment, which addresses federally listed species (note that the Bald Eagle is addressed in the Biological Assessment although it is not federally listed). The Biological Evaluation serves to ensure that FS actions do not contribute to loss of viability or a trend towards Federal listing for any sensitive species and provide a process and standard by which to ensure that sensitive species receive full consideration in the decision making process.

This Biological Evaluation (BE) considers the potential effects of the North 40 Project on sensitive plant and wildlife species. The best available science on sensitive plant and wildlife species was used to document this consideration of potential effects, including recent scientific literature, correspondence with knowledgeable individuals in scientific/land management professions, field surveys, and personal observation. Recent scientific literature used in the document is included in the references section.

### *Sensitive Wildlife Species*

Species addressed in the BE were selected from the Regional Forester's Sensitive Species list (RFSS). Table 1 lists the wildlife species analyzed in this document because they have been determined to occur in the project area or their occurrence in the project area is reasonable to assume. Appendix I contains a list of sensitive species that may occur in or near the Ocala National Forest (ONF) but have no detailed effects analysis in the current document because the project area does not contain suitable habitat or is outside the known range of the species.

**Table 1. Sensitive Wildlife Species Included in Analysis**

Taxa	Scientific Name	Common Name
Mammal	<i>Peromyscus floridanus</i>	Florida Mouse
Mammal	<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel
Mammal	<i>Ursus americanus floridanus</i>	Florida Black Bear
Reptile	<i>Gopherus polyphemus</i>	Gopher Tortoise
Reptile	<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake
Reptile	<i>Sceloporus woodi</i>	Florida Scrub Lizard
Reptile	<i>Stilostoma extenuatum</i>	Short-tailed Snake
Amphibian	<i>Notophthalmus perstriatus</i>	Striped Newt

### *Sensitive Plant Species*

The Ocala National Forest has 64 sensitive plant species on the RFSS. To facilitate analysis, plant species were grouped by habitat association and the effects were analyzed according to the potential impacts of the project on the habitat type. Since this project occurs only on scrub habitat, only sensitive plant species in this habitat type will undergo analysis. Table 2 contains a list of 9 sensitive plant species in the scrub habitat type.

**Table 2. Sensitive Plant Species Included in Analysis**

Habitat Association	Scientific Name	Common Name
Sand Pine Scrub	<i>Arnoglossumfloridanum</i>	Florida Cacalia
Sand Pine Scrub	<i>Asclepiascurtissii</i>	Curtiss' Milkweed
Sand Pine Scrub	<i>Calaminthaashei</i>	Ashe's Calamint
Sand Pine Scrub	<i>Lecheacernua</i>	Nodding Pinweed
Sand Pine Scrub	<i>Perseabumilis</i>	Silk Bay
Sand Pine Scrub	<i>Schoenocaulondubium</i>	Florida Feathershank
Sand Pine Scrub	<i>Sideroxylonenax</i>	Tough Bully
Sand Pine Scrub	<i>Sisyrinchiumxerophyllum</i>	Jeweled Blue-eyed Grass
Sand Pine Scrub	<i>Stylismaabditia</i>	Showy Dawnflower

## 2.0 CONSULTATION HISTORY

In accordance with the Endangered Species Act of 1973, as amended, and pursuant to Section 7 of said act, formal consultation on the Biological Assessment for the Revised Land and Resource Management Plan for National Forests in Florida was requested by the Regional Forester in a letter dated September 18, 1998 (USDA Forest Service 1999). On December 18, 1998, the U.S. Fish and Wildlife Service issued a Biological Opinion on the Revised Land and Resource Management Plan.

The Biological Opinion concurred with the Forest Service's "not likely to affect" determination for 13 federally listed species, and provided terms and conditions for incidental take for five wildlife species that received a "may affect" determination. The Biological Opinion also stated that the "level of anticipated take [was] not likely to result in jeopardy to the species" for the Florida Scrub-Jay, Red-cockaded Woodpecker, Eastern Indigo Snake, Sand Skink, Flatwoods Salamander, and Flatwoods Salamander critical habitat (USDA Forest Service 1999). Issuance of the Biological Opinion concluded all formal consultation on the Revised Land and Resource Management Plan for National Forests in Florida.

An Amendment (Amendment #12) to the Revised Land and Resource Management Plan for National Forests in Florida has been proposed that would change the Management Area designation on ~50,000 acres from Management 8.2 (Sand Pine, Mixed Regeneration, Moderate Openings) to Management Area 8.4 (Florida Scrub-Jay Management Area), including areas that are part of this project. The Forest Service has already undergone the Section 7 Consultation process with the US Fish & Wildlife Service for this proposed Amendment. A Biological Opinion was issued on June 14, 2016 (FWS Log #04EF 1000-2016-F-0215) in response to the Biological Assessment for Amendment #12. This Amendment is currently undergoing the National Environmental and Policy Act (NEPA) process and would be instituted once a Decision Notice is signed by the Forest Supervisor. For an in-depth analysis on the potential effects of the proposed Amendment and the related management on sensitive species, please consult the Biological Evaluation to the proposed Amendment #12. Should the Amendment not get approved, all areas would be continued to be managed under their current management area designations.

## 3.0 PROPOSED ACTION AND ALTERNATIVES

This project is located with Management Area 8.2 (Sand Pine, Mixed Regeneration, Moderate Openings). Note that changes in the desired condition for MA 8.2 and two guidelines (8.2-3 and 8.2-7) have been implemented under LRMP Amendment #8. Also refer to the Amendment 8 Replacement Pages for the changes to the Desired Future Conditions (available at <http://www.fs.fed.us/r8/florida/ocala/resources/planning.php?p=1.1.6.1>). See discussion above on pending Amendment #12.

The Ocala National Forest is proposing to implement the North 40 Scrub Project (see Maps #1 - #3). This project would create over 12,000 acres of scrub openings and includes wildlife, timber management, fuels, forest products, prescribed burning, and road maintenance activities. The proposed actions are described below and evaluated with regard to their potential effects on federally listed species.

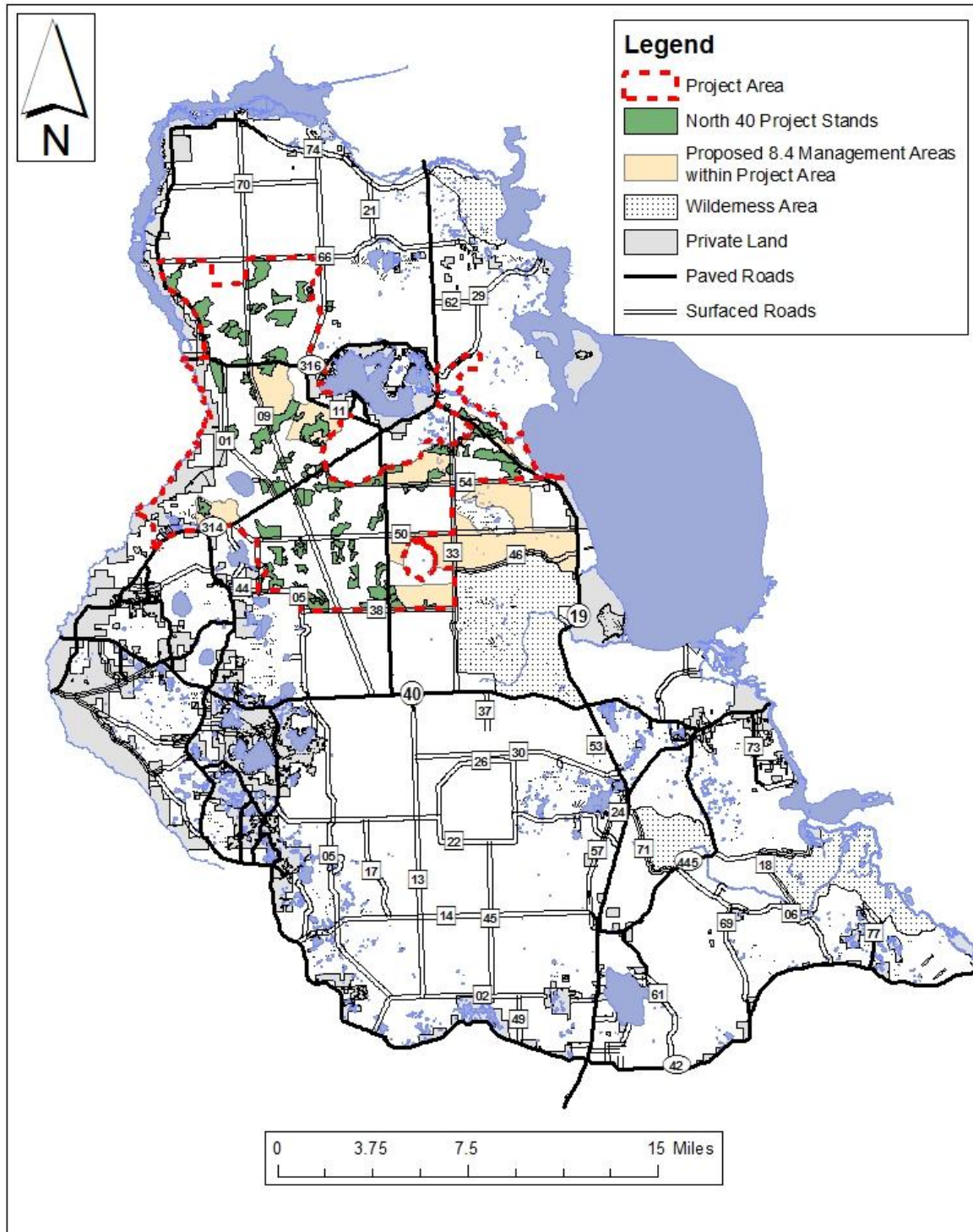
### 3.1 Proposed Action

The activities described for the proposed action are proposed for an area located on National Forest lands in Marion County, Florida and involve a total of approximately 12,000 acres within 31 compartments on the Lake George Ranger District. (Note that some stands may have more than one proposed action occurring within their boundaries.)

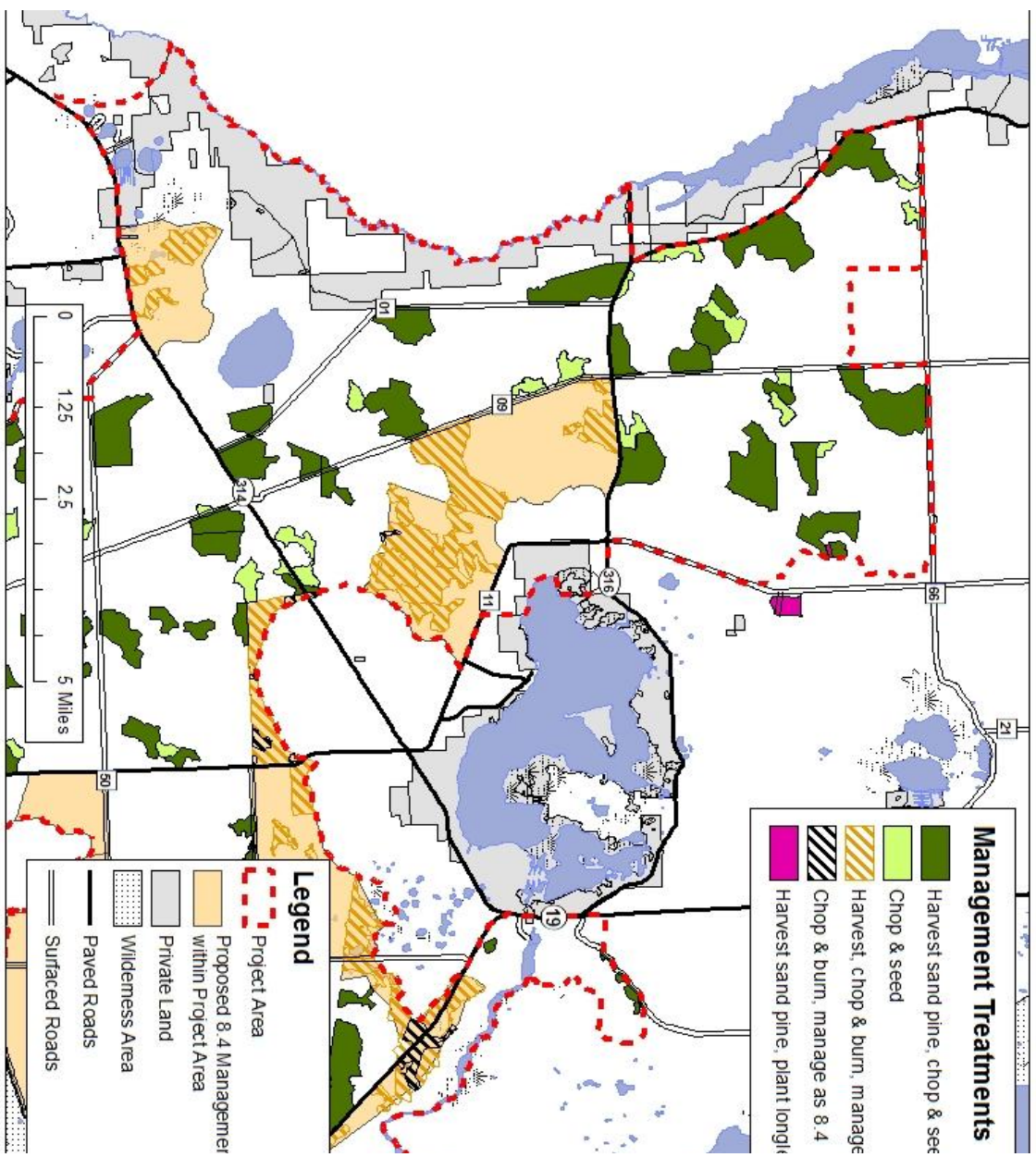
The proposed actions are:

- Harvest sand pine and re-seed with sand pine on approximately 6,900 acres. Harvest of crookedwood may occur prior to sand pine harvest. Roller-chopping and post-harvest prescribed burning may occur after harvest and before seeding.
- Harvest sand pine and manage as early successional scrub on approximately 2,640 acres. Harvest of crookedwood may occur prior to sand pine harvest.
- Roller-chop and re-seed with sand pine on approximately 1,280 acres.
- Roller-chop and/or prescribed burn and manage as early successional scrub on approximately 1,470 acres.
- Harvest sand pine and replant longleaf pine on approximately 80 acres.
- Perform road work to support harvest operations, mostly resurfacing with some reshaping of existing road surfaces.

# Map 1. General Vicinity Map

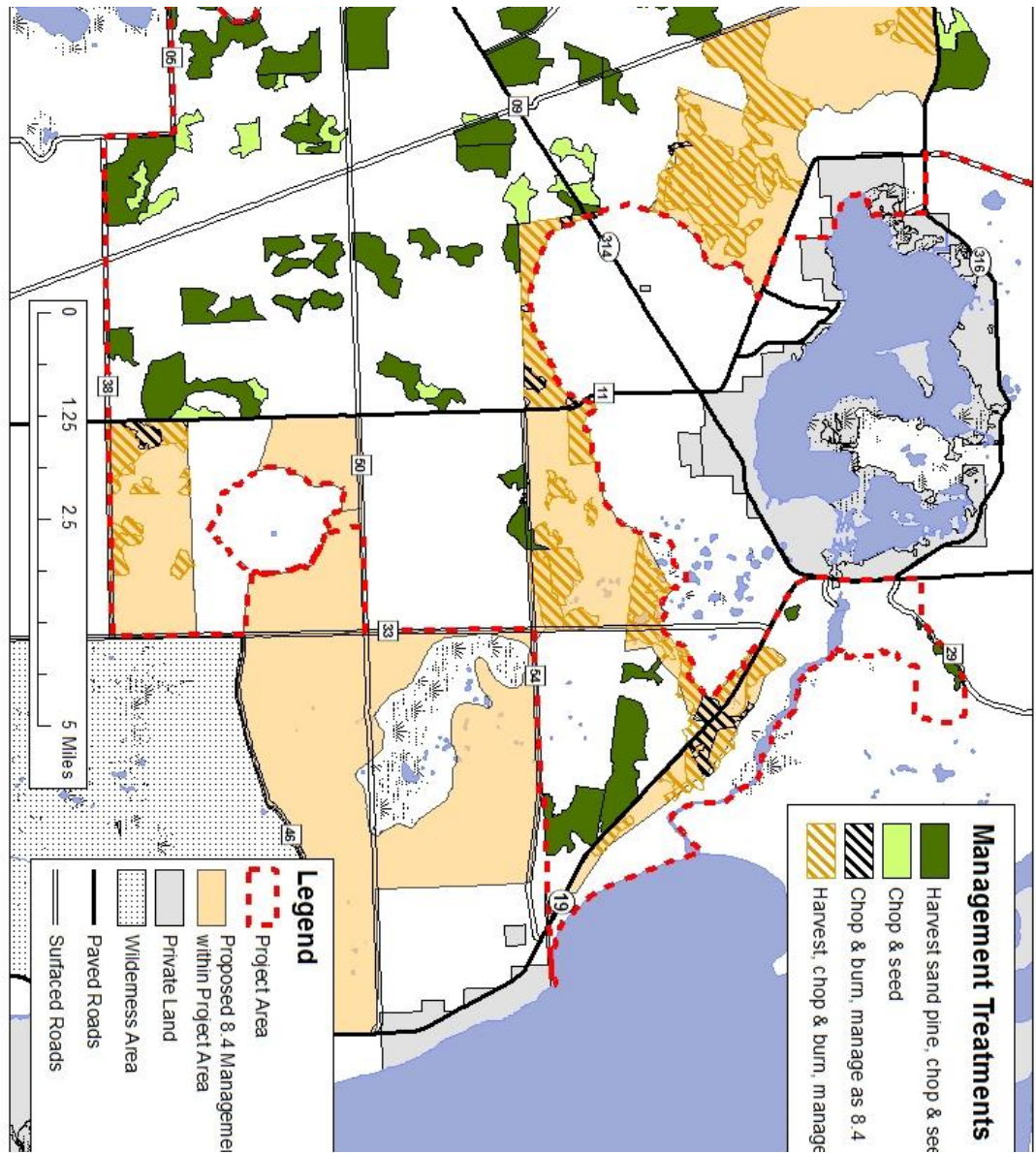


Map 2. North 40 Project Proposed Treatments (West View)





Map 3. North 40 Project Proposed Treatments (East View)



#### *Proposed Actions in Detail*

**Harvest of crookedwood and sand pine.** Stands of merchantable sand pine would be sold in fiscal year 2017 and/or 2018, and harvest activities must occur within three years of sale. Crookedwood (*Lyonia ferruginea*) harvests may be conducted in project stands prior to harvest via permit. During crookedwood harvest activities, the trunks of the crookedwood plant are cut at the base. The rhizomatous stems grow back after cutting.

**Roller-chopping.** This site preparation method uses large drums with 0.75 to 1.0 inch long blades that are spaced 12 to 18 inches apart. Chopper blades sink 8 to 10 inches into the soil and typically disturb 90% of vegetation less than 6 inches in diameter. Chopping breaks down post-harvest logging debris, prepares the seed bed, and moderates oak resprouting. A roller-chopping layout that leaves intermittent areas of undisturbed vegetation (i.e., the “sloppy chop”) is encouraged to promote small-scale habitat variability. Roller-chopping treatments would be performed within 18 months of harvest. In Management Area 8.4, roller-chopping may occur following a final harvest or preceding a maintenance burn. Chopping occurring prior to maintenance burns has a generally lower impact in terms of ground disturbance due to the presence of the shrub layer.

**Post-harvest prescribed burning.** Post-harvest prescribed burns are conducted to benefit various TES species by decreasing coarse woody debris and improving germination and resprouting of fire-adapted plant species. The effects of prescribed burning on TES species are also addressed in the Biological Evaluation of the Effects of Prescribed Burning on Proposed, Endangered, Threatened and Sensitive Wildlife Species (USDA Forest Service 2006). Prescribed burning provides open areas for scrub-jays and mimics some of the natural effects on plant dynamics that historically came from wildfires.

**Maintenance prescribed burning.** Maintenance prescribed burning is done to set back succession and maintain quality scrub habitat for the Florida Scrub-Jay and many other species that require or favor early successional oak scrub. This type of burning would be done once scrub habitat has become unsuitable or nearly unsuitable for Scrub-Jays. Stands generally become unsuitable when the oak shrub layer becomes too tall (over 9 feet in height) and crowded. Scrub stands may be roller-chopped prior to burning in order to rearrange fuels and reduce flame heights. Maintenance burning would only be done in Management Area 8.4, and the stands included in this project are contingent upon approval of Forest Plan Amendment #12.

**Reforest sand pine scrub.** Regeneration activities (seeding) would be carried out within 12 to 15 months of harvest and would occur after roller-chopping and/or prescribed burning activities. Seeding uses a farm tractor with attachments that drop sand pine seeds in an arrangement providing 6' x 8' spacing throughout the stand. Cables on the front and back of the tractor prepare the soil and cover up the seed after it is dropped. In stands that appear to have sufficient natural regeneration, no seeding will occur, or every other row will be seeded.

**Manage as early successional scrub.** About 2,573 acres would be harvested within stands proposed to move to Management Area 8.4. The focus of this Management Area is to provide high-quality habitat for the Florida Scrub-Jay and other scrub endemic species. Stands harvested in this MA would undergo harvest operations but will not be seeded back to sand pine. Stands may be roller-chopped and burned after harvest. For a complete analysis of potential effects on Florida Scrub-Jays and other federally listed or sensitive species, consult the Biological Assessment and the Environmental Assessment for Forest Plan Amendment #12.

**Harvest sand pine, replant with longleaf pine.** An old sand pine seed orchard would be harvested of its sand pine and replanted with longleaf pine seedlings.

**Perform road work.** Roads necessary to support harvest operations will be resurfaced or reshaped to support logging trucks. Clay or rock may be added to some areas and ditches may be re-pulled.



All proposed actions described above in the current project are consistent with and do not exceed the scope of activities described within the Revised LRMP and subsequent amendments (including the pending Amendment #12).

### 3.3 Design Criteria

Design criteria are included to minimize or eliminate potential negative effects of proposed actions. General measures are listed below as well as specific applicable criteria cited from the Forestwide Standards & Guidelines section of the LRMP. Project-specific criteria are generated for this specific project or impose a stricter application of an existing Standard or Guideline.

#### **General Measures**

Incorporate Best Management Practices (State of Florida guidelines) to prevent any adverse effects to water or wetlands.

Maximize the potential for beneficial effects and minimizing the potential for adverse effects on Threatened, Endangered and Sensitive (TES) plant and animal species.

Minimize the potential for introduction and spread of non-native invasive species (NNIS) such as cogon grass, Japanese climbing fern, and Japanese mimosa as a result of timber sales or other mechanical activities.

Locate and protect heritage resource sites utilizing the zone archeologist.

Emphasize prescribed burning to enhance habitat for TES species.

Promote the scenic and environmental goals of the Florida National Scenic Trail (FNST) by using trail protection measures as outlined in the FNST Certification Agreement.

Promote public safety and protect resources adjacent to motorized trails.

Use normal road obliteration procedures that are part of timber sale administration to ensure that new unauthorized motorized trails are not created.

Ensure that short-term uses would sustain or increase long-term ecosystem productivity.

Ensure there is no irreversible commitment of resources.

#### **Timber Production Measures**

Use the following restocking level as guides in conjunction with professional judgment to determine acceptable restocking based on the likelihood that additional efforts will greatly increase stocking, site capability for timber production, and ecosystem health objectives. Sand pine: 200 (lower level) – 1,500 (upper level). (LRMP 3-20 VG-21)

Use clearcut as the preferred method of final harvest in sand pine. Use all other silvicultural practices to meet site-specific needs. (LRMP 3-20 VG-25)

During sand pine harvesting, leave as many standing snags as possible. If an average of one snag per acre is not present, leave live trees to bring the total to one per acre. Where possible, to enhance visual quality, leave clumps of up to 4 trees. (LRMP 3-20 VG-26)

Decide, on a case-by-case basis, to protect oak scrub stands or convert them to sand pine stands. Scrub-jay habitat suitability is one of the considerations in the decision. (LRMP 3-20 VG-27)

### **Watershed and Air**

Clearcut harvesting will not occur within 35 feet of lakes and ponds 2 acres or larger, seasonal lakes and ponds, and all sinkholes that open to the Florida aquifer, as set forth in the Revised 2000 Silviculture Best Management Practices Manual. (LRMP 3-24 WA-2 and WA-3)

During prescribed burning operations, suppressant foam will not be applied within wetland ecotones when wetlands are holding water, and foaming agent containers will not be rinsed in wetlands. (Prescribed Burning BE)

### **Wildlife Protection Measures**

Protect bald eagle breeding areas by meeting the guidelines established in the most recent version of the National Bald Eagle Management Guidelines. (Forest Plan Amendment #8)

Indigo snakes and gopher tortoises will be avoided or otherwise protected from harm when encountered by personnel, cooperators, or contractors engaged in activities that endanger individual specimens. (LRMP 3-29 WL-10)

Timber contractors undergo an educational program that includes information on the physical characteristics of indigo snakes, life history, and types of habitats where the snake is found. Contractors are also instructed to comply with Standards and Guidelines WL-10-12. This measure is as put forth in the Biological Opinion for the Revised LRMP.

Field personnel and contractors will be educated in gopher tortoise burrow identification. In potential gopher tortoise habitat, establishing log landings, designating skid trails, and parking equipment within 25 feet of known gopher tortoise burrows is prohibited. Equipment operators will be instructed to maintain a 25-foot distance during operations when previously unknown burrows are encountered. (LRMP 3-29 WL-11; amended in Forest Plan Amendment #8)

### **Project-Specific Criteria**

No roller-chopping activities will occur from May to August to prevent destruction of the eggs or young of ground-nesting birds and herpetofauna.

If actively occupied striped newt ponds are discovered within or adjacent to the project area, the potential habitat of any terrestrial striped newts would be protected from roller-chopping with a 700-foot radius buffer from the occupied wetland margin.

## **4.0 REGIONAL FORESTER'S SENSITIVE WILDLIFE SPECIES**

### **4.1 Species Not Considered**

Potential effects on eleven sensitive wildlife species are not considered because treatment areas are outside the established range of the species or does not contain habitat associated with the species. **The proposed actions will have no effect on these species.** A list of species not considered and short explanations are in Appendix I.

#### **4.2 Florida Mouse (*Podomys floridanus*)**

##### **Impacts of Proposed Action**

###### *Direct and indirect impacts*

Mature sand pine stands scheduled for harvest would not be likely to be occupied by Florida mice, since canopy closure can reduce or eliminate habitat for the species (Myers 1990). Chopping and prescribed burning would be unlikely to directly impact Florida mice inhabiting stands post-harvest since they could escape to tortoise burrows or areas left undisturbed, but a small chance exists that individuals could be harmed by these actions.

Harvesting, chopping, and burning activities indirectly benefit the Florida mouse by creating an open canopy and sustaining oak species within an age range that provides mast. Gopher tortoises would also benefit from these treatments, and the Florida mouse shares a close association with this species' burrows (Layne 1992). The Florida mouse often builds side burrows in the main chamber of active gopher tortoise burrows and will also use abandoned burrows (Kinlaw & Grasmueck 2012). Seeding will not create any direct effects due to its low disturbance level. Reforestation may indirectly impact the Florida mouse as project stands mature and achieve canopy closure thereby impacting gopher tortoise habitat quality and lowering oak densities. Stands harvested and managed as early successional scrub would provide significant indirect benefit to the Florida mouse because stand conditions would provide sustained high quality habitat for the species, with intermediate fluctuations as stands are maintained with disturbance.

###### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact on the Florida mouse. Early successional habitat would be generated and maintained in a mosaic of different ages across the landscape. Connected and future actions benefiting the gopher tortoise will also benefit the Florida mouse. Should additional MA 8.4 be added to the landscape in future projects, Florida mice would benefit from increased habitat connectivity.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability.*** Overall, the action would promote favorable habitat conditions. While these conditions in some areas would wane over time as the sand pine matures and canopy closure occurs, other areas would remain as early successional habitat over the long term, ensuring adequate quality habitat for the Florida mouse over the landscape.

#### **4.3 Sherman's Fox Squirrel (*Sciurus niger shermani*)**

##### **Impacts of Proposed Action**

###### *Direct and indirect impacts*

There is little information in the literature on the use of scrub habitat by Sherman's fox squirrels. Based on local observation, their use of the scrub appears to be limited to ecotones between sandhills and scrub. Thus the impacts described below would be limited to such ecotonal areas.

Harvest activities may directly impact squirrel young if mature sand pine trees with nests are removed. Adults with territories within harvest boundaries may have a brief negative indirect impact by increased exposure to predation while establishing a new territory. Harvested stands may indirectly benefit squirrels in nearby stands by providing additional mast sources when oaks resprout and begin producing mast (approx. three years post-harvest). This benefit may be pronounced in ecotonal area between scrub and sandhills, where alternative acorn sources may be sought out when turkey oak mast crops fail (Kantola and Humphrey 1990). Roller-chopping, prescribed burning, and reforestation activities would not cause any direct impacts because newly harvested stands would only be used for occasional foraging. These activities would provide indirect benefit by promoting oak growth and acorn production in the short term and sand pine seed in the long term. Stands managed as early successional scrub after harvest would provide sustained alternative mast for fox squirrels inhabiting the scrub-sandhill ecotone.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a minor beneficial impact to the Sherman's fox squirrel, in particular individuals occupying sandhills habitat adjacent to sand pine scrub habitat. Continued management will provide a consistent regeneration of younger, more mast-productive scrub habitat balanced with older, mature sand pine habitat.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the Sherman's fox squirrel. Treatment may disturb or displace individuals in project stands, but species' use of this habitat is low and impacts would not be significant. Treatment of the project area helps to provide additional mast sources and mature habitat over the landscape.

### **4.4 Florida Black Bear (*Ursus americanus floridanus*)**

#### **Impacts of Proposed Action**

##### *Direct and indirect impacts*

Harvest operations conducted during the denning months (January to April) may directly impact pregnant or nursing sows denning in mature sand pine stands identified to be harvested. Sows in such areas may have to move or potentially abandon cubs. Chopping, prescribed burning, and reforestation activities will not directly impact black bears because open areas are not used significantly by black bears because they lack adequate cover. Pre-burn chopping and maintenance burning without prior roller-chopping may cause bears present to flee the stand during treatment.

Harvest activities would indirectly benefit black bears by providing hard mast sources (scrub oak acorns are a major food source; Maehr & Brady 1984) while the stand is young, and by providing escape cover and denning sites as the stand matures and reaches canopy closure (if in Management Area 8.2). Because of canopy closure, these areas would also have lowered food availability from lowered oak and forb abundance. Areas harvested and managed for early successional habitat (if in potential Management Area 8.4) would also provide mast but would not provide high-quality denning habitat for female black bears because they prefer dense vegetation for denning. However, the potentially affected acreage in this project is small and distributed throughout the project area, and there is more than adequate mature sand pine forest elsewhere in the project area that could serve as denning habitat. Chopping and burning will provide minor indirect benefit by stimulating oak growth and mast production.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial impact to the Florida black bear by continuing to provide a mosaic of oak scrub habitat in different age classes. Black bears require habitat of varied ages to satisfy natural history requirements throughout their life span (i.e., food, escape cover, denning cover, travel corridors). Future projects that create and/or maintain early successional habitat in potential Management Area 8.4 would add to areas in the landscape that would change from mature sand pine scrub to early successional scrub. This would both decrease denning habitat and increase food availability on the scrub landscape of the Forest. The decrease in denning habitat would not be expected to significantly impact the bear population as denning habitat is not seen as a limiting factor.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the Florida black bear. Treatment may disturb or displace individuals in project stands, but the project helps maintain the landscape in a mosaic of habitats and age classes that provide for the breadth of natural history requirements of the species.

#### **4.5 Gopher Tortoise (*Gopherus polyphemus*)**

##### **Impacts of Proposed Action**

##### *Direct and indirect impacts*

Harvest activities would not directly impact the gopher tortoise because mature sand pine stands have too much canopy cover and thus inadequate ground cover to support tortoises. Stands designated for chopping and prescribed burning treatments may be occupied by gopher tortoises, but tortoises can retreat to their burrows and their burrows would be marked and avoided per design criteria. Gopher tortoises would indirectly benefit from harvest activity due to creation of new habitat and an increase in ground cover. Studies have shown increases in clutch size, growth rate, and rate of mass gain in gopher tortoises after clearcutting, likely in response to food increases (Diemer-Berish and Moore 1993). Chopping and prescribed burning also provide indirect benefit by stimulating new palatable vegetative growth in forage species. Seeding will not create any direct effects due to its low disturbance and the avoidance of burrows. Reforestation may indirectly impact the gopher tortoise via decreased habitat quality as project stands mature and achieve canopy closure. Continued management as early successional scrub in potential MA 8.4 habitat would provide benefit by maintaining habitat suitability over the long term.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial impact to the gopher tortoise by creating early successional habitat. This management scheme provides a consistent influx of young habitat for the gopher tortoise. As additional MA 8.4 is added to the landscape in future projects, gopher tortoises would benefit from increased habitat availability and increased habitat connectivity.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the gopher tortoise. Minor disturbance is possible and direct impact is remotely possible, but mitigations provided by design criteria minimize the possibility of this occurring. Overall impacts provide benefit by continuing to regenerate and maintain early successional scrub thereby increasing food availability and creating/maintaining an open habitat structure.



#### **4.6 Florida Pine Snake (*Pituophis melanoleucus mugitus*)**

##### **Impacts of Proposed Action**

###### *Direct and indirect impacts*

Harvest activities would be an unlikely mortality risk for Florida pine snakes since mature sand pine stands have too much cover to support associated species (pocket gophers, gopher tortoises). Any individual present prior to harvest can easily leave the stand. Florida pine snakes can also avoid direct impacts from harvest, chopping, or burning operations by leaving the stand or taking refuge in gopher tortoise burrows or undisturbed habitat.

Harvest, chopping, and burning activities provide indirect benefit by creating habitat conditions (open canopy, areas of open bare ground, coarse woody debris) beneficial to major prey items such as pocket gophers and other rodents. However, Miller et al. (2012) found that Florida pine snakes selected sites with more shrub/woody cover and less bare ground as compared to random sites. If such a relationship held in scrub habitat (little documentation exists on how this species uses scrub), then early successional scrub habitat within potential MA 8.4 may not provide ideal habitat conditions for the species, while reforested sub-mature sand pine scrub within MA 8.2 may provide more shrub cover and less bare ground. Since Florida pine snakes have large home ranges (up to several hundred acres), they use a variety of habitats and age classes throughout their daily and life cycles (Franz 1992), and mix of successional stages across the landscape would be beneficial.

###### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a cumulative beneficial impact to Florida pine snakes by sustainably providing a mosaic of age classes within sand pine scrub habitat. A patchwork of different age classes provides for the various life history needs of a species with a large home range such as the Florida pine snake.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the Florida pine snake. Harvest treatments will increase habitat quality for an important prey species (the pocket gopher) over the short term, and over the long term provide a variety of age classes within sand pine scrub habitat.

#### **4.7 Scrub Lizard (*Sceloporous woodi*)**

##### **Impacts of Proposed Action**

###### *Direct and indirect impacts*

Harvest activities would not directly impact scrub lizards because they do not inhabit mature pine stands. Scrub lizards are quick enough to evade machinery used in harvest and roller-chopping treatments, and thus a significant impact from mortality would not be expected from these activities. Some risk of egg destruction exists, but the indirect benefits of treatment outweigh potential egg loss. Scrub lizards could also escape or use burrows for protection from prescribed burn operations. Harvest activities would provide an indirect beneficial impact by increasing habitat quality (e.g., areas of bare sand for basking and feeding) immediately after harvest. Studies have shown an increase in scrub lizard relative abundance in harvested, chopped, and broadcast seeded stands versus mature forest (Greenberg et al. 1994). Roller-chopping and prescribed burning would provide indirect benefits by reducing shrub and leaf litter layers, creating open bare ground and reducing coarse woody debris.

Seeding would not directly impact the scrub lizard because individuals can easily avoid the farm tractor and soil disturbance only affects the top inch of soil. Reforestation could indirectly negatively impact the species by decreasing the amount of time a harvested stand would remain suitable for scrub lizards. Stands managed as MA 8.4 would significantly indirectly benefit the scrub lizard by maintaining high habitat quality over time.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial impact to the scrub lizard by providing a consistent level of early successional scrub habitat on the landscape. As additional MA 8.4 is added to the landscape in future projects, scrub lizards would benefit from increased habitat connectivity, an essential benefit to a species with limited dispersal ability such as the scrub lizard.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the scrub lizard. Treatment may create minor disturbance, but ultimately will be beneficial by improving habitat quality over the short term, and over the long term provide a variety of age classes within sand pine scrub habitat. Scrub within MA 8.4 would provide high quality habitat over the long term.

#### **4.8 Short-tailed Snake (*Stilosoma extenuatum*)**

##### **Impacts of Proposed Action**

##### *Direct and indirect impacts*

Although the short-tailed snake is primarily associated with longleaf pine-turkey oak habitat, it is “occasionally” found in sand pine scrub habitat adjacent to its primary habitat (Moler 1992). Campbell and Christman (1982) did find that within the scrub of the Ocala NF, short-tailed snakes were more abundant in early successional scrub versus mature areas “with a mature canopy”. Based on this information, harvest activities would be unlikely to cause significant direct impact due to lower habitat quality. Any individuals occupying mature stands could be impacted by direct mortality, egg destruction, or increased exposure of individuals forced to leave harvest stands. Harvest activities would provide an indirect benefit by regenerating early successional scrub habitat and soil conditions that promote fossorial locomotion (decreased shrub/tree abundance).

Maintenance roller-chopping (only occurs in MA 8.4) presents a risk of direct mortality of individuals or eggs residing beneath debris or just under the soil surface. The depths at which short-tailed snakes spend much of their time is unknown, but only individuals within the top 6-8” could be impacted by chopping operations during maintenance chopping. Post-harvest chopping would be unlikely to impact short-tailed snakes due to habitat unsuitability at the time of treatment.

Chopping would provide indirect benefit by reducing coarse woody debris and creating open areas of bare sand. Chopping would not be anticipated to significantly impact the crowned snake, a major prey species for the short-tailed snake (Moler 1992). Prescribed burning poses little threat of direct impact due to the fact that the species’ fossorial nature would protect it from any fire treatments. Prescribed burning would indirectly benefit the short-tailed snake by reducing coarse woody debris and creating open areas of bare sand. Burning could potentially impact prey species such as the Crowned Snake (*Tantillarelicta*), as studies on the ONF showed that

Reforestation activities would not directly impact the short-tailed snake because the disturbance is minor and only impacts the top inch of the soil layer. These activities may indirectly impact the short-tailed snake by decreasing the amount of time the habitat remains in suitable conditions. As a stand matures, sand pines would grow larger and hinder movement through the soil. In potential 8.4 MAs, forest stands would be more open and have less underground vegetative matter, and thus may represent more favorable habitat conditions for short-tailed snakes.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial impact to the short-tailed snake by allowing land managers to produce early successional habitat. Land management related to this project provides a consistent influx of early successional habitat for the short-tailed snake, and areas within potential 8.4 MAs would provide maintained early successional habitat.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability*** for the short-tailed snake. Treatment may create minor disturbance, but ultimately will improve habitat quality over the short term. Over the long term and landscape-level, management will provide a variety of age classes within sand pine scrub habitat.

#### **4.9 Striped Newt (*Notophthalmus perstriatus*)**

The striped newt is a small aquatic salamander endemic to north-central Florida and southern Georgia. Striped newts breed in isolated temporary ponds in sandhills and scrub habitat. The striped newt is an opportunistic feeder on items such as frog eggs, fairy shrimp, and bottom-dwelling invertebrates (Christman and Franz 1973). Little is known about striped newt ecology outside of its breeding phase.

Adults are known to disperse from ponds into upland habitat. Dispersal from breeding ponds may average longer distances than other salamanders. Johnson (2001) estimated that at least 16% of striped newts leaving breeding ponds in a central Florida population dispersed more than 1,640 feet. However, documentation of striped newts breeding in scrub ponds indicate that individuals remain in the ponds as paedomorphic adults and do not move out into the upland scrub areas, likely due to a lack of favorable ground conditions. Anecdotal evidence suggests that striped newt occurrence in scrub ponds is related to pond connectivity, since isolated scrub ponds have low incidences of striped newts.

There is one pond known to have been occupied by striped newts within the project area. Only a portion of potential ponds have been surveyed for striped newts. For analysis purposes, occupation will be assumed for all ponds within the project area.

#### **Impacts of Proposed Action**

##### *Direct and indirect impacts*

Any striped newts occupying mature sand pine forest within the project area could be directly impacted by harvest, roller-chopping, and prescribed burning activities. However, there is no evidence that suggests striped newts utilize mature terrestrial sand pine scrub habitat. If striped newts were present in scrub project stands, they could experience some negative indirect effects from changes in the forest stand microclimate (higher soil temperatures, decreased soil moisture) and structure (decreased leaf litter and coarse woody debris) that are unfavorable for amphibians.

Since striped newt use of scrub appears limited to ponds, existing design criteria stating that harvesting will not occur within 35 feet of lakes and ponds more than 2 acres should prevent any direct or indirect impacts from affecting striped newts occupying ponds within the project area. The existing design criteria also states that roller-chopping will not occur within 700 feet of ponds known to be occupied by striped newts. This protects paedomorphic adults within ponds and the majority of any terrestrial adults using the upland habitat (if such use occurs) from direct impacts from the roller-chopper. This design criteria would be implemented for the one occupied pond within the project area and any others where striped newts are found.

Reforestation activities will not be likely to create any direct impacts since the disturbance is low and would occur in upland scrub areas. Seeding is not anticipated to introduce any indirect impacts since upland sand pine scrub habitat is not known to be used by the species.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact. Continued landscape-scale scrub habitat management and included design criteria will maintain wetland-upland connectivity, promote colonization of new breeding ponds, and prevent mortality in extant breeding ponds.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability for striped newts.*** While some proposed treatments present limited risk of direct mortality, the presence of design criteria limits the amount of risk and the introduction of fire into wetlands embedded in the scrub would benefit habitat quality for the species.

## 5.0 REGIONAL FORESTER'S SENSITIVE PLANT SPECIES

### **5.1 Sensitive Plant Species Associated with Sand Pine Scrub Habitat**

#### **Impacts of Proposed Action**

##### *Direct and indirect impacts*

The sensitive species associated with sand pine scrub habitat are herbaceous/ground cover or shade-intolerant understory plants that require open habitat conditions (e.g., lack of a canopy, bare patches of sand). Therefore it is unlikely that harvest operations would impose significant direct impacts on these species because harvest areas have developed canopies and would not likely be occupied by this suite of plants. It is possible that some of these species could occur on the periphery of a harvest operation, where adjacent disturbances could have created favorable conditions, but such occurrences would be infrequent and any impacts would be unlikely to significantly impact even local populations, much less cause a trend towards federal listing or a loss of viability. Plants in areas receiving an excessive amount of disturbance, such as a log landing, may experience mortality in an extremely limited area but the number of individuals impacted would be minimal. Harvesting would remove the canopy and create open conditions favorable for the many of the sensitive species listed. The shade-intolerant woody species would appear after colonizers and ground cover have become established.

Roller-chopping and prescribed burning present some risk of direct impact to scrub-associated sensitive species, but most scrub endemic species possess a hardy bulb or other underground root structure that allow the plants to resprout after disturbance. Roller-chopping and prescribed burning would reduce the coarse woody debris left behind by harvest operations, creating open

conditions. Prescribed burns of moderate intensity would create a flush of nutrients for plants. Timber harvest following by prescribed burning and a rain event could cause minor erosion in some areas with leaching of nutrients. Burning would likely increase germination and stimulate re-sprouting and growth in fire-adapted sensitive species.

Reforestation activities would be unlikely to cause any direct impacts because the process creates very minor physical disturbance, and the scrub-adapted species and colonizing plants are adapted to disturbance. As the midstory and canopy develop, many species would be indirectly impacted by becoming shaded out or by losing the open sandy areas required, but such changes are a part of succession. Future harvests would be planned to ensure that a mix of age classes occurs throughout the landscape. Areas being maintained as early successional scrub after harvest would benefit long-term from the potential Management Area change. The increased open bare ground and open canopy would provide favorable conditions.

#### *Cumulative impacts*

The management action, when considered with past, present, and reasonably foreseeable future land management, would provide a beneficial cumulative impact. Continued landscape-scale scrub habitat management would help provide the new early successional habitat required by these species over the long term. Future projects adding to MA 8.4 (upon approval) would provide beneficial cumulative impact by maintaining high habitat quality over time and improving connectivity between local populations.

The proposed action ***may impact individuals but would not be likely to result in a trend towards federal listing or loss of viability***. The proposed treatments present only a limited amount of risk of direct impacts to individual plants, much less pose any risk to the greater localized populations of these sensitive species. Indirect impacts are mostly beneficial and any negative effects are attributed to natural successional changes. Over the long term and landscape-level, management will provide a variety of age classes within sand pine scrub habitat.

## 6.0 DETERMINATION OF EFFECTS

Based on the preceding analysis of the effects on Regional Forester's Sensitive Species, I make the following determinations that the proposed actions:

### 6.1 Alternative 1: Management Action

#### Sensitive Wildlife Species

- **May impact individuals but would not be likely to result in a trend towards federal listing or loss of viability** for the Florida Mouse, Sherman's Fox Squirrel, Florida Black Bear, Gopher Tortoise, Florida Pine Snake, Scrub Lizard, Short-Tailed Snake, and Striped Newt.

#### Sensitive Plant Species

- **May impact individuals but would not be likely to result in a trend towards federal listing or loss of viability** for the 9 sensitive species that may occur in the project area based on habitat association with scrub habitats.



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## **Appendix I. Sensitive Species Not Present**

### **1.1 Dense Hydrobe (*Aphaostraconpyncus*)**

The dense hydrobe is a small brown snail confined to the Alexander Springs Run on the Ocala National Forest. No proposed activities occur on or near the Alexander Springs Run.

### **1.2 Seminole Spring Siltsnail (*Cincinnatiavanhyningi*)**

The Seminole Spring Siltsnail is a small snail confined to Seminole Springs in Lake County, Florida. No proposed activities occur in or near Seminole Springs.

### **1.3 Silver Glen Springs Cave Crayfish (*Procambarusattigus*)**

The Silver Glen Springs Cave Crayfish is an albinistic crayfish known only to occur in Silver Glen Springs cave. No proposed activities occur in or near Silver Glen Springs cave.

### **1.4 Big-cheeked Cave Crayfish (*Procambarusdelicatus*)**

The Big-cheeked Cave Crayfish is an albinistic crayfish known only from Alexander Springs on the Ocala National Forest. No proposed activities occur on or near the Alexander Springs.

### **1.5 Hobbs' Cave Amphipod (*Crangonyxhobbsi*)**

The Hobbs' Cave Amphipod is a small freshwater amphipod that is confined to groundwater habitats in caves. It has not been confirmed to occur in the aquatic caves of the ONF. No proposed activities occur in or near caves.

### **1.6 Arogos Skipper (*Atrytonearogosarogos*)**

The Arogos Skipper is a small yellow butterfly with a scattered distribution of isolated populations throughout the eastern United States. Populations were known in the Lake Delancy area of the Ocala National Forest, but are no longer considered to be extant. No proposed activities occur in or near the Lake Delancy area.

### **1.7 Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)**

The Atlantic Sturgeon is a long-lived anadromous fish species that occurs in the rivers, estuaries, and of Florida. It has not been confirmed to occur in the rivers within or bounding the ONF. The proposed actions do not occur near any rivers, estuaries, or oceans.

### **1.8 Rafinesque's Big-eared Bat (*Corynorhinusrafinesquii*)**

Rafinesque's Big-eared Bat is a medium-sized, long-eared bat that is considered rare throughout its entire range. Individuals have been documented in pine flatwoods and hardwood hammocks in Florida and have been observed roosting in large, hollow old-growth trees in bottomland hardwood forests (Chapman 2007). The project area does not contain large, old-growth hardwood trees or

other potential roost sites for Rafinesque's Big-eared Bat. Based on the absence of potential roosting sites, the project will have no impact on Rafinesque's Big-eared Bat.

#### **1.9 Bachman's Sparrow (*Aimophila aestivalis*)**

The Bachman's sparrow is a small, plain sparrow strongly associated with open pine woodlands in the southeastern United States. There are no open pine woodlands within the project area and therefore no proposed activities will impact the Bachman's sparrow.

#### **1.10 Florida Sandhill Crane (*Grus canadensispratensis*)**

The Florida Sandhill Crane is a large, non-migratory subspecies of Sandhill Crane that occurs in pastures, prairies, and wetlands in Florida. While there are some ponds within the project area, there are no anticipated direct or indirect impacts other than minor disturbances from machinery working in the area.

#### **1.11 Round-tailed Muskrat (*Neofiberalleni*)**

The Round-tailed Muskrat is a moderately large rodent associated with shallow marshes with dense emergent vegetation. There are no shallow marsh areas within the project area and therefore no proposed activities will impact the round-tailed muskrat.